



LAWRENCE
LIVERMORE
NATIONAL
LABORATORY

NIF Facility User Training Requirements

G. Campbell

March 22, 2024

Disclaimer

This document was prepared as an account of work sponsored by an agency of the United States government. Neither the United States government nor Lawrence Livermore National Security, LLC, nor any of their employees makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or Lawrence Livermore National Security, LLC. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States government or Lawrence Livermore National Security, LLC, and shall not be used for advertising or product endorsement purposes.

This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.



NIF Facility User Training Requirements

Training Category and Description		Point of Contact
1	Introduction to NIF Shot RI Training & Shot RI Resources Trainees internal to LLNL: online course in LTRAIN NP1313-W Trainees external to LLNL: https://lasers.llnl.gov/training/NP1313-W/index.html NIF overview, roles and responsibilities, NIF configuration and capabilities, experimental lifecycle, experiment scheduling, experimental readiness, NIF expert groups and facility stakeholders, support	Greg Campbell
2	Introduction to SST, Shot Planning Tools, Visualization, and Data Shot planning tools, shot setup tools, post shot tools, obtaining expert group approval, general run through of entire process of shot life cycle from start to finish as an RI.	Mentor
3	Laser Performance (BLIP) Power and energy limits, power and energy performance (balance), beam conditioning (bandwidth, wavelength, CPPs), bundle/quad/beam use constraints and ROEs (RMDE) and compensation for BLs, beam pointing definition, range, and constraints, laser timing and constraints, tradeoffs such as optics inspection, optics use rates, CPP exchanges, etc, backscatter issues and concerns	Tom Zobrist
4	Target Fabrication Tools Intro to tools: TRT, LoCoS, target metrology plan, target RVP	Jeremy Kroll
5	Introduction to NIF Operations NIF Operations staffing and shift schedules, working in the facility/facility access, shot cycle/ RI interface to operators and Shot Director, Control Room access/rules, Shot RI roles and responsibilities including shift briefings, Approval Manager annotations; shot time change limitations, Safety System implications for shots	Adam Langro
6	Introduction to Target Fielding Target operations group interactions, target fielding capabilities and limitations; target prep times and approvals, yield control, shot categories	Travis Briggs
7	Diagnostics, Factory, and RVP Optical, x-ray, nuclear instruments, snouts and pinholes, design and fielding constraints (stayout zones, standoff, debris wind, etc), target diagnostic factory (incl assembly, disassembly, film, long lead items, etc), diagnostic alignment, diagnostic timing and cross timing, tradeoffs such as standoff vs field of view, diagnostic RS, diagnostic RVP	Marty Galley
8	Alignment: Training Videos, Alignment Observations, and Discussion 1. Introduction: meeting with Dan Kalantar 2. Training videos: Target Alignment, DIM Alignment, and TAS Alignment 3. Shot cycle observations: minimum of three shot cycle observations required 4. Final discussion: meeting with Dan Kalantar Topics: Target alignment, DIM alignment, TAS alignment, diagnostic and target alignment review, target configuration design constraints (debris/shrapnel, 1w, backscatter, alignment), target positioners and positioning capability, tolerances, etc, TAS alignment and TAS position sequencing	Dan Kalantar



The following items are needed:

Offsite trainees: These will be requested for you unless otherwise specified.

NIF B581 Site Access:

NP0581-W: B581 Site Access Training for Core

NP0581-TOUR: NIF B581 Facility Orientation

NIF Site Access Request Form

Tools Access:

SST

Archive Viewer (Trainee must request access with OUN/AD)

LoCoS/Glovia

ELM/Windchill

Email List:

NIF Shot RI email distribution

NIF User forum email distribution

Close Out:

Final sign-off (NIF Operations Manager)

Add to Shot RI list in SRT/Shot Planner

Training completion in LTRAIN

NIF&PS

Tool	Description	Location	Access
NIF User Portal	NIF issues its calls for proposals, scores and tiers proposals. Principal Investigators (PIs) can respond to “calls for proposals” in various program areas: Discovery Science, National Security Application, Stockpile Stewart Program. The PI can submit proposals via this portal and add their abstracts, proposals, supporting documentation, and collaborators for the various open calls. Additionally, this tool is used for governance of our call process and captures facility and peer review evaluations of proposals.	NIF external webpage: https://llnl.my.salesforce-sites.com/	Follow link and click "Request Access"
Shot Planner	The Shot Planner is NIF’s principal tool for shot schedule creation. It is also a way for RIs to define the experimental setup at an early stage, to share the setup with expert groups for analysis, and to communicate optic, target, and diagnostic needs with the factories.	nifit.llnl.gov Campaign Management Launch Shot Planner	OUN/AD to log in
Shot Setup Tool (SST)	NIF personnel use SST to generate the laser and facility configuration for an experiment. SST is a suite of software applications designed to translate experimental plans and specifications into actions for the control system. Components of the SST-managed automated shot cycle include: <ul style="list-style-type: none"> • Inputting campaign shot goals • Performing automatic alignment and wavefront correction • Configuring diagnostics and laser performance settings • Conducting countdown • Assessing shot outcome and archiving shot data 	nifit.llnl.gov Campaign Management Launch NIF Shot Setup Tool	ServiceNow > Request Campaign User & Campaign RI roles.
Approval Manager	An experiment setup is split up into a number of data groups in order to facilitate review by expert groups. Approval Manager provides reports for the reviewers and tracks the status of each review. Once they are all complete, the tool provides the means for the NIF Operations Manager to export the experiment to the control system for execution.	nifit.llnl.gov Campaign Management Launch Approval Manager	Oun/AD to log in
Target Request Tool (TRT)	Target ordering system: submit and track target requests.	nifit.llnl.gov Target & Orders	OUN/AD to log in

NIF&PS

Archive Viewer	Archive Viewer is the interface that allows NIF personnel and visitors to view data from the NIF data repository as a dashboard or in tabular form, or to download data as a zip file or via a WebDAV interface for offline processing and subsequent reloading into the archive. Access to archive data is controlled and granted by the NIF program leads.	nifit.llnl.gov Shot Analysis Launch Archive Viewer	New account: https://nifit.llnl.gov/viewer/newAccountRequest.action New access to existing account: https://nifit.llnl.gov/viewer/requestAccess.action
LoCoS/Glovia	NIF personnel use the web-based LoCoS system to track installed parts from the facility level down to individual parts. It also captures and manages calibration data for target diagnostics, targets, and parts.	nifit.llnl.gov LoCoS	Service Now Request
Laser Performance Operations Model (LPOM)	For any given experiment, the user-requested energies and pulse shapes are submitted to the Laser Performance Operations Model (LPOM) to assess their feasibility. LPOM simulates the beam fluence and intensity of each participating beam at all relevant points in the laser and checks the results for compliance with NIF's equipment protection limits.	nifit.llnl.gov LPOM Launch LPOM	OUN/AD to log in
ICCS Quicklooks	View raw shot data and query the NIF Archive database.	nifit.llnl.gov Data Visualization Launch Quicklooks	Service Now Request
ELM/Windchill	Access drawings for targets and diagnostics.	https://elmu.llnl.gov/Windchill/app/	Service Now Request
NIF Wiki	Tool to create, organize, and discuss work with your team. Every team, project, or department can create its own space.	nifit.llnl.gov Related Links - NIF Wiki	Link to request access
Status Board	The Status Board provides users with information about the shot currently being executed, the schedule for the week, and the facility sweep status. The tool is displayed on monitors throughout the NIF buildings and is also available online through a Web browser.	nifit.llnl.gov Status Board	OUN/AD to log in
Shot Clock	The shot clock allows NIF personnel and visitors to monitor the progression of the experiment as the NIF control system implements the experimental parameters defined in SST.	nifit.llnl.gov Shot Clock	OUN/AD to log in